

WHAT IS CLAIMED IS:

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1. A method for compensating for signal changes of a wavelength-division multiplex signal caused by cross phase modulation in a fiber amplifier, comprising the steps of:
 - 5 obtaining a control signal from an optical wavelength division multiplex signal, said control signal controlling a phase modulator; and
 - 10 supplying said control signal with said wavelength-division multiplex signal, in such a manner that signal changes of said wavelength-division multiplex signal caused by cross phase modulation are at least largely compensated for.
- 15 2. The method as claimed in claim 1, further comprising the steps of:
 - tapping an optical measurement signal off of said optical wavelength-division multiplex signal;
 - 20 converting said optical measurement signal by opto-electrical conversion into an electrical measurement signal; and
 - converting said electrical measurement signal into said control signal by an adjustable amplifier.
- 25 3. The method as claimed in claim 2, further comprising the step of delaying said wavelength-division multiplex signal supplied to said phase modulator with respect to said optical measurement signal.

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4. The method as claimed in claim 1, further comprising the step of measuring signal changes at an output of said phase modulator and controlling said control signal.

5 5. An arrangement for compensating for signal changes caused in a wavelength-division multiplex signal by cross phase modulation by a fiber amplifier, having a control circuit comprising:

10 a measurement coupler which couples out a part of said wavelength-division multiplex signal as an optical measurement signal;

an opto-electrical converter which converts said optical measurement signal into an electrical measurement signal;

15 an electrical amplifier that has an input supplied by said electrical measurement signal and an output which is an amplified measurement signal as a control signal; and

20 a phase modulator having a signal input and a modulation input, said wavelength-division multiplex signal being supplied to said signal input, and said control signal being supplied to said modulation input, a gain being selected such that said phase modulator outputs a wavelength-division multiplex signal which is at least largely compensated for.

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6. The arrangement as claimed in claim 5, wherein said electrical amplifier is adjustable.

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7. The arrangement as claimed in claim 5, wherein said wavelength-division multiplex signal is delayed between said measurement coupler and said phase modulator.

5 8. The arrangement as claimed in claim 5, wherein at least one of said measurement coupler and said phase modulator is inserted between a number of sections of an amplifier fiber.

10 9. The arrangement as claimed in claim 5, wherein said arrangement is connected immediately before or after said fiber amplifier.